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28 August 1970
SG-70/303

MEMORANDUM FOR: Chief, DDP/SG

SUBJECT : Summary of VIATRON Test Results and Recommendation

REFERENCES : A) Memo of 6 March 1970 for [REDACTED] "Plans for Testing of VIATRON Equipment."
B) Memorandum for the Record, 24 April 1970, "VIATRON System 21 Evaluation Trip."
C) Memorandum for the Record, 10 July 1970, "Status of VIATRON Equipment."
D) Memorandum for the Record, 6 August 1970, "Costs and Benefits of VIATRON for GICS and Other Applications."

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Introduction

1. The 90-day test period for the three VIATRON System 21's which we acquired on 19 June is now two-thirds complete. It is possible, on the basis of the first sixty days of experience with this equipment, to draw some conclusions and to recommend a course of action (see Paragraph 21).

Test Participants

2. During this test period we have made intensive use of one VIATRON installed in the SG area. Two other VIATRONs have been shared by four other DDP elements that have assisted us in the evaluation effort. These elements, and the time periods during which they tested the equipment follow:

<u>Element</u>	<u>From</u>	<u>To</u>
[REDACTED]	19 June	13 August
[REDACTED]	19 June	11 August
[REDACTED]	11 August	Present
[REDACTED]	13 August	Present

Test Objectives

3. Our original intent, during the test period, was to determine the usefulness of the VIATRON in two situations:

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a. As a substitute for the 029 keypunch and for the 059 verifier. In this situation the only change in the flow of data on route to the computer would be the substitution of one hardware item, the VIATRON System 21, for each of two other two items, the 029 and the 059. Our test plan was to repeat a series of keypunch-verifier jobs with the VIATRON equipment and to compare times. (Attachments 1, 2, and 3 are the test procedure and the forms employed.)

b. As a means of achieving source data automation. In this situation there would be a major change in data flow. Data would be entered through the VIATRON onto VIATAPE cassettes by the analysts who normally prepare input sheets by hand. With the data recorded on VIATAPE cassettes there would then be no need for the keypunch/verification process that now takes place in [REDACTED] VIATAPES would be converted either to cards by the VIATRON/6001 Card Punch/Reader or to computer tapes by the VIATRON 5002 Computer-Compatible Tape Recorder.

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Test Results

4. Results of the keypunch substitution tests (3.a., above) are not as yet conclusive. Only eight jobs have been run through both the keypunch/verifier (KPV) process and the VIATRON (VIA) process for comparison purposes thus far. Of those eight, five had to be rejected for apparent data base differences. For the three apparently successful comparisons, total time expended in the KPV process was 1 hour, 32 minutes, while total VIA time was 3 hours, 55 minutes. Attachment 4 gives a breakdown.

5. Little significance can be attached to a test based on a sample of size three. Additionally, the test suffered from another defect: the VIATRON operators from SG lacked previous data entry experience and were less familiar with the formats than were the keypunchers and verifiers from [REDACTED]. In a more realistic test, we might cross train several experienced keypunch operators on the VIATRON and let them, rather than the secretaries from SG, operate the VIATRON during the tests. No controlled tests of this type have been possible thus far because of over-riding demands on the personnel of [REDACTED].

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6. As for the source data automation experiment (3.b., above), we were not seeking quantitative results to begin with. We did receive from the participants, principally [REDACTED], a number of useful comments regarding the applicability of the VIATRON to their functions. The next section summarizes these comments.

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Participant Comments

7. Inasmuch as a large amount of DCU's keypunch workload is input to GICS, that application appeared to be one where source data automation might pay off handsomely. For reasons that could only be determined through several weeks of experimentation, however, the participants from [REDACTED] and [REDACTED] concluded that GICS source data automation with VIATRON had these disadvantages:

a. It could never really obviate hard-copy temporary records, since the analysts must know constantly what new input data they have prepared since the last computer-printed update. Even if we were to increase the frequency of these computer updates from monthly to, say, twice a week, the analysts would feel uneasy without the temporary hard-copy, and that is precisely what source data automation is intended to eliminate.

b. Finding space for the equipment would be a problem. There is not at present sufficient space in the SB/RMO area to give each analyst a VIATRON, and to oblige two or more analysts to share a single machine would create still other problems.

c. The capacity of a VIATAPE cassette--416 records--is well below that which [REDACTED] could permit efficient source data automation.

d. The speed at which the VIATRON keyboard accepts information is slower than that of an electric typewriter and hence annoying to the analyst who is also a fast typist. (There are not many of these, to be sure, but one of the GICS analysts who helped to test the VIATRON did fall into the fast typist category, and she complained.)

e. The VIATRON displays only a single line at a time. The GICS input sheet displays all twenty or so lines. The analyst does not necessarily make entries onto the GICS sheet from the top of the form to the bottom. With the sheet before him, the analyst knows when all possible entries have been made on it. With the VIATRON, the analyst can only perform this type of double checking by rewinding and redisplaying a series of VIATAPE records, a patience-tasking operation.

f. The GICS input sheet provides the chief analyst, or editor, with a convenient means of spot-checking the work of his analysts. VIATRON lacks a comparable capability.

8. On the other hand, for certain functions other than the routine entry of GICS input data, the SB/RMO and [REDACTED] representatives believe that the VIATRON may be effective. Among the functions that they have suggested are these:

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- a. Making corrections to Incorrectly prepared GICS Input records rejected by the computer.
- b. Setting up queries to the GICS data base.
- c. Preparing [REDACTED] (sensitive) Input from Form 1896.
- d. Computing the annual records inventory.
- e. Preparing Input for the retired records program.
- f. Preparing Input for the SB Division manning table.
- g. Preparing Input for the photo machine project.

Other Possible Applications

9. Source data automation with VIATRON equipment, or any similar product, if feasible, could result in significant savings in some of the other systems that currently require large key-punching volumes. One such system is the CI Program, managed by [REDACTED] where experimentation with VIATRON began in mid-August. Another is the nascent [REDACTED] data management system, currently in the data preparation phase pending project approval. One of the VIATRONs has been on loan to [REDACTED] for testing since mid-August.

10. We have explored the applicability of source data automation via VIATRON for some other large systems. Some of these systems, with their KPV volumes for FY 1970 shown in parentheses, are the Camera and Aperture Card Service (136,811), File Chargeout (191,277), Document Locator (257,124), IPS Index Purge Cards (211,036), NGS Update (154,969), and SIS Update (91,358).

11. While the sheer volume of these systems in Para. 10 makes them appear to be attractive candidates for source data automation, closer examination shows that the data flow for all of them is of such complexity as to eliminate them from consideration. Here are some of the characteristics that inhibit source data automation:

- a. For some systems, people who are numerous, ambulatory, and scattered prepare input sheets sporadically throughout the day. VIATRON is too costly and too immobile for this type of system.

- b. For some systems, part of the input sheet is prepared by machine, and the analyst simply adds a few pencil strokes to prepare the input. Introduction of the VIATRON would oblige the analyst to copy numbers or other data that he does not now have to copy.

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c. For at least one system, Camera and Aperture Card Service, the keypunchers work with cards that have already been partially punched. Introduction of source data automation would thus entail either obliging analysts to enter more data on VIATAPE than the keypuncher currently enters, or preparing partially-recorded VIATAPES in advance.

d. For one system, NGS Update, the input sheets are prepared by contract employees at locations away from the Headquarters building. Training for these people and maintenance of VIATRON equipment installed at their working areas would probably be awkward.

Reliability

12. On the strength of the sixty days of testing that we have performed so far, we find that calls to the dealer for repairs to the most-used machine (SG's) have averaged almost one per week. Calls for maintenance to the other two machines have been less frequent, but their lower use rate might account for that. The company has always responded promptly, that is to say within half a day, to our distress calls. The repairs themselves have rarely required more than a few minutes.

13. Still, with the equipment down for an average of half a day a week, 10% of working time, the user is likely to become disgruntled. We did. Inoperative equipment works special hardships, moreover, on the user who has only one machine, e.g., in source data automation. My conclusion, based on the tests to date, is that VIATRON does not yet promise the kind of reliability that we should require of an input device.

Training

14. Miss [REDACTED] who became quite expert at operating the VIATRON equipment during her summer employment with SG, trained seven or eight other people in its use. Trainees included some who had prior keypunch experience and others who did not. With one or two exceptions, all of them found the equipment easy to use within a day or so of their first exposure to it.

VIATRON's Future

15. Although our major interest during this testing period has been gaining first-hand experience with VIATRON equipment, we have also followed reports in the press and from other outside sources concerning the manufacturer's progress. These reports have not been encouraging. Both Datamation and Computerworld have become increasingly caustic in recent months over VIATRON's claims of eighteen

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months ago, claims that have not thus far materialized. In a current series of articles entitled "Sycor Terminal Analysis," Computerworld takes a close look at some equipment similar to VIATRON's, explaining that "VIATRON's price increases and switch to a purchase-only policy has prompted a search for suitable alternative leased equipment." This is an allusion to VIATRON's much-publicized entry into the market around early 1969 with promises of renting its System 21 for \$39.00 per month, and to subsequent reneging by VIATRON that has reduced to near-zero the competitive edge that it appeared at one time to hold.

16. Datamation, in like vein, has been critical of VIATRON's ephemeral sales and rental policies. In the May 1970 issue, for example, appears this item: "...A delivery policy placing priority on purchased or long-term-lease units has dealers grumbling and prospective users thinking twice....Customers continue to be interested in testing. 'There's no inducement to buy--not in price, proven reliability or data entry economy--and data entry development is too dynamic'..."

17. Another source, the local representative of BASF, recently told one of our Agency's purchasing agents that the North American Computer Company, the local dealer from whom we obtained our VIATRONs, "is going bankrupt." How much of North American's business comes from the sale of VIATRON equipment, as opposed to other product lines that they may handle, is not known to me, but from numerous conversations with North American representatives I have concluded that they are selling few, if any, VIATRONs in the Washington area. The unnamed customer quoted by Datamation in the preceding paragraph was probably speaking for the majority of potential VIATRON customers when he said, "There's no inducement to buy."

18. On the whole, then, judging by such straws in the wind, VIATRON's future does not look too viable. The customer who buys VIATRON equipment today may find maintenance and spare parts hard to come by two or three years hence.

Options Open to Us

19. The picture presented in the preceding paragraphs is not of sufficient clarity to suggest an easy answer to the question, "What do we do about VIATRON on 19 September?" Some attractive features have been noted; some promising applications have been spotted. On the other hand, a number of questions have been raised concerning the VIATRON's reliability and even the staying power of its manufacturer. Given these mixed notices, we might choose to prolong the test period, deferring the decision to buy or not to buy until we had pursued additional lines of experimentation (e.g., as outlined in paragraph 5 and Attachment 1) and watching VIATRON's market performance for a few more months.

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- a. Lease the equipment now on hand for an additional three months;
- b. Buy part or all of that equipment; or
- c. Return all of the equipment to North American, paying rental costs for the three-month period during which we have conducted tests.

Recommendation

21. My recommendation is that we attempt to follow the first of the alternatives: lease the equipment for an additional three months. Whether we will require all three System 21's will depend in all likelihood on whether or not the type of testing described in Paragraph 5 and Attachment 1 will be feasible, and this in turn depends on availability of operator time in [REDACTED] event that prolongation of the present lease agreement cannot be worked out with the VIATRON representatives, then I recommend course three: return the equipment. I rate course two--buying all or part of the equipment--as the least desirable option, because I do not feel that VIATRON has as yet demonstrated either the product reliability of the company stability that would warrant our investing in their equipment for any extended period.

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[REDACTED]
DDP/SG

Attachments:

- 1 - Procedure for VIATRON vs. Key punch Comparison
- 2 - Test Form A
- 3 - Test Form B
- 4 - VIATRON vs. Key punch, Comparison of Times

cc: C/RID, w/atts.

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PROCEDURE

for

VIATRON VS. KEYPUNCH COMPARISON

<u>Actor</u>	<u>Step</u>	<u>Action</u>
DCU Supervisor	1.	Selects next unused Job Number from log and writes it on Test Form A.
	2.	Gives data and Test Form A to key-punch operator.
Keypunch Operator	3.	Notes starting time.
	4.	Keypunches data.
	5.	Fills out Test Form A.
	6.	Returns data with cards and Test Form A to DCU Supervisor.
DCU Supervisor	7.	Assigns job to a verifier operator.
	8.	Gives cards, data, and Test Form A to that verifier operator.
Verifier Operator	9.	Notes starting time.
	10.	Verifies data.
	11.	Fills out Test Form A.
	12.	Returns data, cards, Test Form A to DCU Supervisor.

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<u>Actor</u>	<u>Step</u>	<u>Action</u>
DCU Supervisor	13.	Checks to see if one job has already been logged for comparison test on this date.
	13.a.	If so, returns data and cards from this job to normal flow.
	14.	If no job has yet been earmarked on this date for comparison test, decides whether this job is appropriate for use in test.
	14.a.	If not appropriate, returns data and cards from this job to normal flow.
	14.b.	If this job is appropriate for testing, makes entry to that effect in log and on Test Form A. Puts Job Number and suspense date on a cover sheet and sends data to SG.
	15.	Places Test Form A in suspense file.
Systems Group	16.	Puts Job Number on a blank Test Form B.
	17.	Gives data and Test Form B to first VIATRON operator.
First VIATRON Operator	18.	Notes starting time.
	19.	Enters data onto a VIATAPE cassette.
	20.	Fills out Test Form B.
	21.	Turns over data, VIATAPE cassette, and Test Form B to second VIATRON operator.

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<u>Actor</u>	<u>Step</u>	<u>Action</u>
Second VIATRON Operator	22.	Notes starting time.
	23.	Verifies data onto second VIATAPE cassette.
	24.	Fills out Test Form B.
	25.	Returns data to DCU Supervisor.
	26.	Returns VIATAPE cassette and Test Form B to test supervisor.
Test Supervisor	27.	Files VIATAPE cassette and Test Form B for later analyses.

Revised 7 July 1970

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T E S T R E C O R D

JOB NUMBER

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PRODUCTION RUN

OPERATOR IDENTIFICATION

INPUT DEVICE TYPE

STARTING DATE

FINISHING DATE

FIRST 5 NON-BLANK CHARACTERS

TOTAL TIME SPENT ON JOB

LAST 5 NON-BLANK CHARACTERS

VERIFICATION

OPERATOR IDENTIFICATION

VERIFICATION DEVICE TYPE

STARTING DATE

FINISHING DATE

FIRST 5 NON-BLANK CHARACTERS

TOTAL TIME SPENT ON JOB

LAST 5 NON-BLANK CHARACTERS

JOB CODE

T E S T R E C O R D

JOB NUMBER

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PARALLEL RUN ON VIATRON

OPERATOR IDENTIFICATION

STARTING DATE

FINISHING DATE

FIRST 5 NON-BLANK CHARACTERS

TOTAL TIME SPENT ON JOB

LAST 5 NON-BLANK CHARACTERS

VERIFICATION

OPERATOR IDENTIFICATION

STARTING DATE

FINISHING DATE

FIRST 5 NON-BLANK CHARACTERS

TOTAL TIME SPENT ON JOB

LAST 5 NON-BLANK CHARACTERS

VIATRON VS KEYPUNCH

COMPARISON OF TIMES

FOR SOME RANDOMLY SELECTED JOBS

KEYPUNCH TIMES

VIATRON TIMES

JOB NUMBER	KEYING	VERIFYING	TOTAL	KEYING	VERIFYING	TOTAL	JOB CODE
0525	LAST FIVE NON-BLANKS OF DATA CARDS DO NOT AGREE. TIMES NOT PROCESSED.						
0504	LAST FIVE NON-BLANKS OF DATA CARDS DO NOT AGREE. TIMES NOT PROCESSED.						
0501	00:20:00	00:30:00	00:50:00	01:00:00	01:30:00	02:30:00	
0810	00:15:00	00:15:00	00:30:00	00:35:00	00:40:00	01:15:00	CDLX
0570	FIRST FIVE NON-BLANKS OF DATA CARDS DO NOT AGREE. TIMES NOT PROCESSED.						
0738	00:10:00	00:02:00	00:12:00	00:05:00	00:05:00	00:10:00	CSVX
0774	LAST FIVE NON-BLANKS OF DATA CARDS DO NOT AGREE. TIMES NOT PROCESSED.						
0671	LAST FIVE NON-BLANKS OF DATA CARDS DO NOT AGREE. TIMES NOT PROCESSED.						

TOTAL TIMES FOR ALL JOBS:

KEYPUNCH TIMES			VIATRON TIMES		
KEYING	VERIFYING	TOTAL	KEYING	VERIFYING	TOTAL
00:45:00	00:47:00	01:32:00	01:40:00	02:15:00	03:55:00